United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Grand Staircase-Escalante National Monument
190 E. Center Street Kanab, Utah 84741

IN REPLY REFER T :
8270/UT 0

May 23, 2 03

Dear Interested Public:

RE: Utah Geological Survey Ceratopsian Skull Airlifts EA, UT-030-03-008

Grand Staircase-Escalante National Monument (GSENM), Bureau of Land Manageme t, has prepared an Environmental Assessment (EA) to evaluate the environmental effects of a paleontological project designed to recover and protect the fossil skulls of two 83 million year old horned dinosaurs found weathering out of the Wahweap Formation.

The proposed project entails the collection and identification of the bones and the preservation of the fossils. The need for the project stems from the fact that the ceratopsian (horned) dinosaur specimens are threatened with rapid loss through erosion because of their occurrence at the surface where the agents of weathering are rapidly reducing the exposed bone to non-descript fragments. The specimens also have very high scientific value as they almost certainly represent new species. Excavation and proper storage in a climate-controlled facility is needed to insure their long-term preservation for study and public enjoyment. The proposed project would provide new information about ceratopsid diversity (number of species) at a time when they were rapidly evolving into one of the dominant dinosaurs of North America. Almost nothing is known about horned dinosaurs from this time, leaving the origins of the two main groups, centrosaurs and chasmosaurs, obscured by lack of knowledge. All dinosaurs went extinct 65 million years ago. Information gleaned here would help scientists answer such questions as "where did these animals come from?", "how did they live?", and "why did they go extinct?". Other benefits include published reports and interpretive opportunities because the specimens could be visually exceptional.

Comments, including names and street addresses of respondents, will be available for public review, by appointment, at the above address (same as listed for submission of comments) during regular business hours (8:00 a.m. to 5:00 p.m.) Monday through Friday, except holidays, and may be published as part of the Environmental Assessment and other related documents. Individual respondents may request confidentiality. If you wish to withhold

your name or street address from public review and disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

If you are interested in providing us with comments, please write to Alan Titus, Grand Staircase-Escalante National Monument, 190 East Center Street, Kanab, UT 84741 **on or before June 20, 2003.**

Sincerely,

ACTING FOR,

David B. Hunsaker
Monument Manager

GRAND STAIRCASE-ESCALANTE NATIONAL MONUMENT
BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL ASSESSMENT COVER SHEET

EA Number:	UT-030-03-08
File Number:	NA
Preparation Date:	March, 2003
Preparing Office:	Grand Staircase-Escalante National Monument 190 East Center Street Kanab, Utah 84741
Project Title:	Utah Geological Survey Ceratopsian Skull Airlifts
Project Type:	Paleontology
Applicant:	Dr. James I. Kirkland, Utah State Paleontologist Utah Geological Survey 1594 West North Temple, Suite 3110 PO Box 146100 Salt Lake City, UT 86001
Location:	Kaiparowits Plateau Region Kane County, Utah

Utah Geological Survey Ceratopsian Skull Airlifts
Environmental Assessment
EA Number UT-030-03-08

I. INTRODUCTION: PURPOSE OF AND NEED FOR ACTION

Introduction

In 2002 personnel from the Utah Geological Survey (UGS) discovered the remains of two scientifically important horned dinosaur skulls while conducting paleontological inventory of the southern Kaiparowits Plateau in partnership with Bureau of Land Management's (BLM) Grand Staircase-Escalante National Monument (Monument). The skull remains are of a primitive form, and both almost certainly represent species and genera that are new to science and that will be important in understanding the origins of later horned dinosaurs. Collection, preparation, and additional study is required to confirm this hypothesis and to protect these unique specimens. UGS has proposed to collect the specimens and prepare them for scientific study and possible public display. Loose surface material in danger of immediate loss was collected under a surface permit in the summer and fall of 2002. The exact site location is not disclosed in this document for protection of the resource.

Purpose and Need

The purpose of this proposed project is to recover and protect the fossil skulls of two 83 million year old horned dinosaurs found weathering out of the Wahweap Formation, via issuance of a permit to the UGS. UGS is seeking permission to collect (therefore preserve) this rare find. Preliminary study has confirmed the important scientific nature of this specimen and its loss would represent the loss of crucial data for understanding late Cretaceous faunas and environments of North America. Proper excavation and scientific study of this specimen will allow scientists to further our understanding of the paleontology of larger vertebrates of North America. The geology of the site consists of late Cretaceous (early Campanian) age non-marine coastal plain deposits that have no other equally fossiliferous age equivalents in the world. The diverse vertebrate record from these rocks includes several dinosaur species, mammals, amphibians, fish, turtles and crocodiles, although very few have been identified to genus, let alone species. Each vertebrate fossil represents a potentially rare and finite resource that provides its own specific set of clues to understanding our planet's past. Unlike biological resources, fossils are non-renewable, and yet they are rapidly destroyed by agents of erosion when they are exposed at the surface. Furthermore, they cannot be fully studied in a field setting. Removal from an erosive environment is the only way to completely protect these scientifically valuable resources. Presently, both skulls are exposed on the surface and are weathering away. The collection of these two fossil skulls would remove the potential for human caused damage to this important resource.

GSENMs' needs are twofold; one is the collection and identification of the bones and the other, and perhaps the most pressing, is the basic preservation of the fossils. The need for the Proposed

Action stems from the fact that the ceratopsian (horned) dinosaur specimens are threatened with rapid loss through erosion because of their occurrence at the surface where the agents of weathering are rapidly reducing the exposed bone to non-descript fragments. The specimens also have very high scientific value as they almost certainly represent new species. Excavation and proper storage in a climate-controlled facility is needed to insure their long-term preservation for study and public enjoyment. The Proposed Action would provide new information about ceratopsid diversity (number of species) at a time when they were rapidly evolving into one of the dominant dinosaurs of North America. Almost nothing is known about horned dinosaurs from this time, leaving the origins of the two main groups, centrosaurs and chasmosaurs, obscured by lack of knowledge. All dinosaurs went extinct 65 million years ago. Information gleaned here would help scientists answer such questions as "where did these animals come from?", "how did they live?", and "why did they go extinct?". Other benefits include published reports and interpretive opportunities because the specimens could be visually exceptional.

Issues

Identification of issues for this assessment was accomplished by considering any resource that could potentially be affected by implementation of each of the alternatives, as well as through scoping with the public and input from the BLM Interdisciplinary Team (Appendix A).

- **Paleontology**
  The focus of the Proposed Action is on the excavation of paleontological resources, and impacts to paleontological resources need to be addressed.

- **Wilderness**
  One of the Proposed Action sites (Last Chance Creek) is located within the Wahweap Wilderness Study Area (WSA) and impacts to wilderness values need to be addressed.

- **Invasive, Non-Native Weeds**
  The potential for invasive, non-native weeds such as cheatgrass and Russian thistle exists and the potential spread of non-native weeds need to be addressed. Mitigating measures described in the proposed action would be employed to prevent the establishment of these noxious weeds.

Conformance with Land Use Plans

The Proposed Action and alternatives described below are subject to the Monument Management Plan, effective February 2000. The proposed excavation sites are located in the Primitive Zone the intent of which is to provide an undeveloped, primitive and self directed visitor experience without motorized or mechanical access. Objectives in the Plan for paleontological resources include the protection of unique resources in all Monument Management Zones from destruction or degradation (Decision SCI-2), and the facilitation of research (Decision SCI-7) to improve the understanding of paleontological resources within the Monument (Decision PAL-1). The Proposed Action is in conformance with these Plan objectives, and meets plan zone prescriptions. It has been determined that the Proposed Action and the No Action Alternative would not conflict with other decisions throughout the Plan.

Relationship to Statutes, Regulations, or Other Plans

The Proposed Action and the alternative are consistent with Federal, state and local laws, regulations, and plans to the maximum extent possible.

Utah's Standards for Rangeland Health addresses upland soils, riparian/wetlands, desired and native species and water quality. These resources are either analyzed later in this document or, if not impacted, are listed in the attached Interdisciplinary Team Review Record (Appendix A).

II. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Alternative A - Proposed Action

UGS is proposing to airlift two fossil dinosaur skull specimens found in the Wahweap Formation on, and north of, Smokey Mountain. The skulls are both of horned dinosaurs, are well preserved, and almost certainly represent genera new to science.

The first skull (Last Chance Creek) is exposed in a roughly four foot by five foot block of extremely hard sandstone. The specimen is just under three feet in maximum dimension and UGS proposes to use a gas powered, hand-held rock saw to trim the skull out of the main block. The site is located approximately 0.5 miles from the nearest road access. The route from the road to the site crosses very rough terrain. Therefore, UGS is requesting the use of a helicopter so the specimen could be airlifted out of the WSA to a waiting truck. By using a long-line and cargo net to carry the block no actual aircraft landing in the WSA would be necessary. The rock face would be returned to a natural-looking condition by breaking up the sawed face with hammers and allowing natural weathering to erode the surface. Estimated time for natural, unaided recovery to pre-excavation conditions ranges from 2 to 3 years, depending on rainfall.

The second skull (Pilot Knoll) is located close to a jeep road but the block containing the skull may be too large to transport without also using a helicopter. At a minimum, a rock saw will be needed to trim the block to a manageable size for transportation. The block would weigh more than two hundred pounds making overland transport without a vehicle very difficult. The collection process of the Pilot knoll skull would be virtually identical to that described above for the Last Chance Creek skull and would be accomplished on the same day.

The "Minimum Tool" concept would be used during the excavation of the two sites. Hand tools such as shovels, picks, trowels, rock hammers, and dental tools would be the principle instruments of excavation. The only mechanized equipment that would be used is a portable, hand-held rock saw. Precautions will be taken to prevent the introduction of exotic plant species. These would include such steps as pre-washing of all equipment used on the site to insure a weed-free status and relying on natural regeneration of the disturbed areas. When ever possible, foot traffic would be limited in the site areas to reduce soil disturbance.

The site is located in the Monument's Primitive Zone and the UGS personnel would comply with all management zone requirements. All materials collected would remain the property of the

BLM, and be reposited at no cost to GSENM at the Utah Museum of Natural History, the primary designated federal repository in Utah.

Alternative B - No Action

In the No Action Alternative, the fossilized dinosaur bones would remain uncollected. Because existing conditions are not static, environmental consequences such as weathering, erosion, recreational use and vandalism would continue to occur.

Alternative Considered But Eliminated From Detailed Analysis

Removing the skulls by hand was considered as an alternative but was eliminated because it was determined that each block would weigh several hundred pounds and be impossible to transport without first breaking it into smaller pieces, which would seriously damage the specimen.

III. AFFECTED ENVIRONMENT

Alternative A - Proposed Action

General Setting:

The sites are located within the Colorado Plateau physiographic province. The study area is characterized by broadly uplifted strata that has been deeply dissected by erosion into a steep badlands topography. The elevations of the two sites range from approximately 5,200 feet to 5600 feet above sea level. Vegetation in the general site area consists of sparse arid desert type low shrubs. Soils are poorly developed (inceptisols) to non-existent on the mostly gray colored shale and sandstone bedrock of the Late Cretaceous age Wahweap Formation.

Critical Elements of the Human Environment:

BLM resource specialists have determined that the following critical elements of the human environment are not present in the project area addressed in the Proposed Action or the No Action Alternative of this EA:

Areas of Critical Environmental Concern
Cultural Resources
Environmental Justice
Farm Lands (prime and unique)
Flood Plains
Fuels (fire management)
Native American Religious Concerns
Threatened, Endangered, or Candidate Species
Vegetation
Water Rights
Wetlands/Riparian Zones
Wild and Scenic Rivers
Woodlands

The following critical elements are present in the project area, but would not be affected by the Proposed Action or the No Action Alternative for the reasons stated below.

- **Air Quality:**

  Although there would be small amounts of dust associated with the excavation work, decreases in air quality would be temporary and minor. Federal and State air quality standards would not be exceeded.

- **Geology/Mineral Resources:**

  No impact to geologic or other mineral resources is foreseen.

- **Grazing/Range Standards:**

  No impact to the grazing or range health is anticipated due to the small-scale, temporary nature of the excavation coupled with the complete lack of forage in the immediate area.

- **Law Enforcement:**

  No significant impact is foreseen from the Proposed Action due to its temporary nature and remote location.

- **Recreation:**

  Minimal recreation is experienced in the area, although OHVs and 4WD vehicles do use a nearby road. Due to the small scale and temporary nature of the Proposed Action, no impacts to recreationists are anticipated.

- **Visual Resources:**

  Minor and temporary visual discontinuity of the landscape will be created by the excavation, but it would cease as soon as the Proposed Action terminates. Within three months, it would be nearly impossible to tell it ever happened.

- **Wastes:**

  No impact is anticipated from the Proposed Action because all wastes generated during the collecting (e.g. plaster spillage) would be removed when the site work was completed.

- **Wildlife:**

  No impact to the native wildlife is anticipated for the same reasons as given for Grazing.

- **Watershed:**

No significant watershed impact is expected because the area rarely contributes water into the perennial water systems and the action would be temporary, small scale, and uses no potentially contaminating chemicals.

- **Soils**

  No impact to soils or soil crusts is anticipated due to the small-scale, temporary nature of the excavation. Site rehabilitation and mitigating measures described in the proposed action would be employed to limit ground disturbance and prevent erosion.

- **Water quality**

  Water quality would be unaffected by the proposed action. There would be no impacts to wetlands, floodplains or water resources.

Resources Brought Forward for Analysis:

Resources that were not identified as having potential impacts, conflicts or issues from the Proposed Action or No Action Alternative will not be discussed further in this Environmental Assessment. Specific resources that could potentially be affected by the Proposed Action Alternative or the No Action Alternative are *paleontology, wilderness inventory area,* and *invasive and non-native species*.

Paleontology

There are over 20 sedimentary geological formations in the Monument that range in age from Permian (270 million years ago) to Cretaceous (65 million years ago). In particular, the Kaiparowits Plateau region is underlain by rocks that preserve one of the best and most continuous records of Late Cretaceous terrestrial and marine life in the world, a time when the age of dinosaurs was drawing to a close. The remains of marine reptiles, dinosaurs, birds, turtles, fish, crocodiles, other vertebrates, invertebrates and plants, are all found on the Kaiparowits and in total these give us a very complete picture of what life was like between 95 and 65 million years ago. These resources are important to members of the scientific community as well as academic institutions, private organizations, and other interested individuals throughout the world and are also sought after by illegal commercial collectors.

Wilderness Resources

The Last Chance Creek site is located within the Wahweap Wilderness Study Area (WSA). The Wahweap WSA (UT-040-248) is located in eastern Kane County, north of Big Water, Arizona. The Warm Creek WIA is located in eastern Kane County about 25 miles northwest of Page, Arizona. Although there are some vehicle ways and fences within the WSA and the paleontology resources have been disturbed by collecting activities, these impacts are substantially unnoticeable in the WSA as a whole, and the area retains an overall appearance of naturalness. There are outstanding opportunities for solitude and primitive and unconfined recreation, including hiking, camping, sightseeing and photography in Last Chance Creek area. Supplemental values include the spectacular views as well as archaeological and paleontological

values. The WSA and the WIA are managed according to the ***Interim Management Policy for Lands Under Wilderness Review*** **(IMP)** to preserve their suitability for congressional wilderness designation.

Invasive and Non-Native Species

No known invasive and non-native species are located in the area around the Proposed Action sites. The potential exists for prolific non-native weeds to get established in the excavation site because of ground disturbance and foot traffic.

Alternative B - No Action Alternative

The description of the affected environment for the No Action Alternative is the same as the description for the Proposed Action.

IV. ENVIRONMENTAL CONSEQUENCES

This section discloses the potential consequences or effects of each alternative described in Chapter II. The intent of this chapter is to provide the scientific and analytical basis for comparison of the effects of each alternative.

Alternative A - Proposed Action

- **Direct and Indirect Impacts**

  - Paleontology
    The collection of bones for scientific research as proposed, would physically remove a minute portion of the paleontological resource from the Monument. This would eliminate the possibility for temporary *in situ* visitor recreation or field study opportunities. However, visitor/resource encounters in this isolated region are extremely limited and liable to result in unauthorized removal of the resource. Removal of the specimen from the field would allow scientists to prepare and study the specimen in a laboratory environment and safeguard it for all to enjoy. This would further provide critical diagnostic information on the identity of the individual. Only two other ceratopsian skulls have been found to date in the Wahweap Formation, thus each new specimen is scientifically important. Publications derived from this research as well as display of the material in an appropriate setting would provide interpretive and educational opportunities for Monument visitors or in-school programs. If left in place, bone material exposed to the surface would continue to disintegrate as a result of active erosion. Removal of the bones would eliminate the potential for damage and irretrievable loss of the specimen to weathering and unauthorized collection. Because the specimen is a poorly known or new species, new scientific data on the geographic distribution and diversity of ceratopsid would be documented after the material had been properly prepared and studied.

  - Wilderness Study Area
    The Proposed Action is located in the Wahweap WSA. Because hand tools would be

used, excavation would not impact opportunities for primitive recreation or solitude. Excavation would minimally impact naturalness during the period of activity, but the site is small, the activity is temporary, and it does not require reclamation involving recontouring or revegetation. Natural weathering would return the site to a natural-appearing condition shortly after the excavation is completed (2-6 months depending on rainfall). Thus, the proposed excavation would not disqualify the area from further consideration as a wilderness study area. The paleontological resources within the Wahweap WSA are supplemental wilderness values. Knowledge gained by this proposed excavation would enhance understanding of their significance, helping to underscore the need to protect this area.

- Invasive and Non-Native Species
  The Proposed Action introduces the potential for invasive, non-native weeds such as cheatgrass and Russian thistle to become established within the area of the collection site, after the bones have been removed. Semi-annual monitoring of the site for the succeeding two years after the dig should be sufficient to prevent its establishment. Control of the weed would be accomplished by pulling the plants by hand.

Cumulative Impacts

Excavation of these fossils could increase interest in paleontological resources in the Monument. A heightened awareness could lead to increased visitation to known sites, and a potential for vandalism and unauthorized collecting throughout the Monument. Because of the short duration and remoteness of the project, increased public attention on this specific resource site is not anticipated.

Repeated excavations of fossil material from the backcountry areas by paleontologists would also slightly reduce the amount of bone visible on the surface to visitors. However, paleontological excavations are limited to those rare sites where relatively whole or otherwise identifiable and scientifically important specimens can be recovered. This represents only a fraction of the total amount of bone material exposed on the surface in any given place, and scientific excavations are not significantly reducing the volume of bone deposits. Unauthorized casual or commercial collecting are the real threats to these valuable resources, reflected in National Park Service estimates that the 93,533 acre Petrified Forest National Park loses 12-14 tons of fossil wood annually to illegal collecting by visitors (see http://www.nps.gov/pefo/treestostone.htm).

Because impacts to wilderness values would be temporary, and the area would appear natural shortly after the excavation is completed, cumulative impacts to wilderness values are not anticipated, other than a heightened awareness of the value of the paleontological supplemental values.

Monitoring

The excavation sites would be inspected by BLM personnel during and at the completion of the project to ensure that the area was left in an environmentally acceptable condition. Continued monitoring would follow to ensure full rehabilitation of the land, and that noxious weed infestation would not occur.

Alternative B - No Action

- **Direct and Indirect Impacts**

  - Paleontology
    In the No Action Alternative, important scientific information would not be documented and thus lost forever. Exposed fossil material would weather away and would be susceptible to unauthorized collection.

  - Wilderness Study Area
    Under this alternative, no excavation would occur at either of the two sites. Therefore there would be no impacts to naturalness and outstanding opportunities for solitude and primitive recreation. However, the opportunity to enhance knowledge about paleontological supplemental values would be forgone.

  - Invasive and Non-Native Species
    In the No Action Alternative, the site would not be dug, possibly lessening the chance that invasive, non-native weeds would colonize the area.

Cumulative Impacts
No significant cumulative impacts are anticipated.

Monitoring
Monitoring would be done to insure that site was not excessively compromised through vandalism or erosion.

V. CONSULTATION AND COORDINATION

List of BLM Preparers
Alan Titus, Paleontologist, GSENM
Marietta Eaton, Assistant Manager, Cultural & Earth Sciences, GSENM
Craig Sorenson, Wilderness Specialist, GSENM
Margaret Kelsey, Wilderness Lead, Utah State Office
Noel Logan, Environmental Coordinator, GSENM

Persons, Groups, and Agencies Consulted
Dr. James Kirkland, Paleontologist, Utah Geological Society

Public Notice and Availability
Notice of the EA was posted on the Interim Electronic Notification Bulletin Board on March 7th 2003. At the same time notice of the EA was made available in hard copy format through the Utah BLM State Office information access center and the Monument headquarters office in Kanab, Utah.

Public Issue and Alternative Identification:

Public Review of EA:

VI. APPENDICES

A. BLM Interdisciplinary Team Review Record

B. Minimum Tool Standard for Paleontological Research

C. Stipulations for Paleontogical Research in Grand Staircase-Escalante National Monume

GRAND STAIRCASE-ESCALANTE NATIONAL MONUMENT
INTERDISCIPLINARY TEAM REVIEW RECORD

Project Title: Last Chance/Pilot Knoll Ceratopsian Skull Collection
EA Number:
Project Leader: Alan Titus
Plan Decision/Objective: PAL-1; SCI-1; SCI-7
Project Number: PAL2002_10
Date Proposal Received: October, 2002
Date of Public Notification:

NI: resource/use present but not impacted; PI: potentially impacted; NP: not present

NI/PI/NP	Name/Discipline	Date Reviewed	Signature	Review Comments (required for all NIs and NPs. PIs may require further analysis.)
NI	Bate, ~~Olyer~~ Oyler, Christensen (Grazing/Range Standards & Guides)	3/31/03	R Oyler	due to size of disturbed area no Impacts to grazing or Rangeland Health
NP	L. Fertig, W. Fertig (Restoration Needs)	1/19/03	L. Fertig	Site is on bare rock, so restoration is not necessary.
NP	L. Fertig, W. Fertig (Vegetation)	1/19/03	L. Fertig	Impacts negligible - very little vegetation present.
PI	Shakespeare, Barber, Fertig, Zimmerman (Invasive, non-native species)	1/14/03	MZ	Clean equipment brought on site to prevent establishment of undesirable sps. Monitor site for 3-5 yrs for presence & eradicate as needed.
NP	Chapman, Fertig (Woodland/Forestry)	1/13/03	Paul Chapman	
NP	L. Fertig, W. Fertig (Special Status Plants)	1/19/03	L Fertig	none known from area. Nonetheless, take care not to unnecessarily disturb vegetation.
NI	Barber, D. Pope, Falvey (Fish & Wildlife)	4/23/03	[illegible]	
NI	Barber, D. Pope, Falvey (Special Status Animals)	4/23/03	[illegible]	
NP	Chapman, Christensen, D. Pope, Fertig, Vanderbilt (Riparian/Wetlands)	1/13/03	Paul Chapman	
NI	Fertig, Vanderbilt Goheen (Soils/Biological Soil Crusts)	4/03/03	[illegible] Goheen	possible erosion
NP	Christensen, Vanderbilt (Floodplains)	1/13/03	Paul Chapman	
NI	Vanderbilt (Air Quality)	1/13/03	Paul Chapman	PROJECT WOULD NOT IMPACT AIR QUALITY
NI	Vanderbilt, Chapman, Powell (Water Quality, drinking or ground)	1/13/03	Paul Chapman	PROJECT WOULD NOT IMPACT WATER QUALITY
NI	Chapman, D. Pope, W. Fertig, Vanderbilt (Watershed)	1/13/03	Paul Chapman	SITES WILL BE RESTORED SO INCREASED EROSION WON'T BE A CONCERN: NO IMPACT
NP	Vanderbilt (Water Rights)	1/13/03	Paul Chapman	
NI	McAlear, Sorensen, Bellew (Recreation)	3/14/03	C Sorenson	

NP	Sorensen, Bellew (Wild & Scenic Rivers)	3/14/03	C Sorenson	
PI	Sorensen, Bellew (WSA/Other Wilderness Concerns)	3/14/03	C Sorenson	Site 1 is located in the Johnson WSA. Site 2 is located in the Warm Creek LWA.
NI	Lloyd (Visual Resources/Landscape Arch.)	3/17/03		Not visual from sensitive travelway by casual observer
NI	Powell, Titus Keep Powell posted (Geology/Mineral Resources/Adverse Energy Statement) HOLLAND	3/18/03		PROJECT WOULD NOT ADVERSELY AFFECT GEOLOGY OR MINERAL RESOURCES. ENERGY RESOURCES WOULD NOT BE IMPACTED
PI	Titus (Paleontology)	3/19/03		Science affected by loss of data if not collected. Resource lost to erosion.
NP	McFadden, Zweifel (Archaeology)	3/17/03	DM	Inventory was conducted & no cultural resources were encountered.
NP	McFadden (Native American Indian Concerns)	3/17/03	DM	" "
NP	McFadden, Zweifel (Historic Resources)	3/17/03	DM	" "
NI	Olsen, L. Pope WOLF (ROW/Access/Other Lands Issues)	1/13/03	DOW	No issues.
NP	Chapman, Welp, Yarborough (Fire Management)	1/19/03	LFertig	Fuels negligible to absent.
NI	L. Pope, Doug Powell HOLLAND (Waste, solid or hazardous)	3/18/03		STANDARD EXCAVATION COLLECTION METHODS WILL BE USE
NI	(Environmental Justice)	1/13/03	DOW	No Minority or economically challenged populations would be disproportionately affected.
NI	L. Pope, McAlear WOLF (Socio-economics)	1/13/03	DOW	No issues
NP	(Prime or Unique Farmlands)	1/13/03	DOW	
	Paul Briggs (Fuels Staff)			
PI	Long, Vensel (Law Enforcement)	1/13/03		Law Enforcement should be on scene. Public Access/Safety Needs to Addressed
	Hunsaker, Eaton, O'Dell, Sharrow, Wolf, (Manager Notification)	1/13/03 1/13/03 1/13/03 1/13/03	B Sharrow DWolf M Eaton T O'Dell	
	Noel Logan (Environmental Coordinator)			FINAL REVIEW

Attach this checklist to the DNA/EA and FONSI/Decision Record (Sept. 2001)

Appendix B

Minimum Tool Standards for Paleontological Excavations Conducted in Grand Staircase-Escalante National Monument

The types of tools that are appropriate for any given paleontological excavation are determined by six primary factors; (1) time contraints on removing specimens from the field, (2) remoteness of the site, (3) the number of workers available, (4) rock and fossil characteristics, (5) the perceived visual and auditory impact of the types of tools considered, and (6) the available tool resources. Working within these contraints, paleontologists have, in cooperation with federal and other land agencies, developed a minimum tool ethic to minimize impacts to sites and still make collection as efficient and safe as possible. This ethic binds researchers collecting fossils on public lands to use of the least mechanized, least impacting tools neccessary to get a job done in a reasonable amount of time.

Minimum tool standards for paleontological research in Grand Staircase-Escalante National Monument (GSENM) are derived from the same ethics mentioned above. In GSENM, removal of bulk rock overburden or other detritus will be done with hand tools such as hammers (sledge and rock), chisels, prybars, picks, and shovels unless time constraints, other resource considerations, or the nature of the rock matrix make such use of tools impractical, dangerous, or potentially damaging to specimens.

APPENDIX C

GUIDELINES AND BACKCOUNTRY RULES FOR PALEONTOLOGICAL RESEARCH IN GRAND STAIRCASE-ESCALANTE NATIONAL MONUMENT

General

1) The permittee cannot, unless specifically authorized, erect, construct, or place any building, structure, or other fixture on public lands. Upon leaving, the lands must be restored as nearly as possible to pre-existing conditions.

2) Hammering nails into trees is prohibited.

Camping

1) Dispersed primitive camping is not allowed in the Frontcountry and Passage Zones. Camping in the Frontcountry and Passage Zones must be in developed campgrounds or in designated primitive camping areas. Designated primitive camping areas have not been identified in the Monument to date. Therefore, if a permittee intends to camp in areas not designated as primitive camping areas in the Frontcountry and Passage Zones, they must identify these areas in their operating plans.

2) Motorized or mechanized vehicles may pull off designated routes no more than 50 feet for direct access to dispersed camping areas in the Outback Zone, except in Wilderness Study Areas, endangered plant areas, relict plant areas and riparian areas.

3) Camping within 200 feet of an isolated water source, i.e., seep, spring, pond, rock pool, water pocket, is prohibited.

4) Permittee will maintain all premises to standards of repair, orderliness, neatness, and sanitation acceptable to the Monument. Camp areas will be regularly cleaned and no trash or litter will be allowed to accumulate.

5) Food and/or equipment caches will not be allowed unless prior approval is obtained from the Monument. Location of proposed caches must be identified in the permittees operating plan.

Collections

1) Collection of Monument resources, objects, plants, parts of plants, animals, fish, insects or other invertebrate animals, bones, waste, or other products from animals, or of other items from within the Monument is prohibited. The collection of small amounts of fruits, nuts and berries for personal, noncommercial use is allowed.

Fire

1) Campfires are not allowed in the Escalante and Paria/Hackberry Canyons, No Mans Mesa, and in archaeological sites, rock shelters and alcoves throughout the Monument.

2) Campfires are allowed only in designated fire grates, designated fire pits, or mandatory fire pans in Frontcountry and Passage Zones. However, wood collection for campfires is not allowed in Frontcountry and Passage Zones, therefore you must bring your own.

3) Campfires are allowed in Outback and Primitive Zones. The use of fire pans is encouraged and only dead and down wood can be collected or bring your own. Burn wood to ashes and douse

with water, making sure that your fire is DEAD OUT and that the area is restored to a natural condition before leaving.

4) When using designated fire grates or designated fire pits in the Frontcountry and Passage Zones, burn all wood and coals to ash, put out campfires completely, then leave cool ashes.

5) If using a mandatory fire pan in the Frontcountry and Passage Zones, burn all wood and coals to ash, put out campfires completely.

6) If constructing a fire in the Outback and Primitive Zones, use an existing fire ring, instead of building a new one. Also, burn all wood and coals to ash, put out campfires completely, then scatter cool ashes.

7) The use of billy can stoves in areas where fires are not allowed is prohibited.

8) Permittee may be held responsible for fire suppression costs resulting from wildfire caused by the permittee, and its employees, agents, and/or representatives and by all clients, customers and participants under the permittee's supervision.

9) Wildfires should be reported immediately to the nearest BLM office. Permittee is responsible for informing employees, clients, and participants of the current fire danger and required precautions that may be placed in effect by BLM or the State of Utah.

Group Size Limits

1) Group size is limited to 25 people in the Passage and Outback Zones including guides.

2) Group size within the Primitive Zone is limited to 12 people and 12 pack animals including guides, however within the Paria River corridor in the Primitive Zone group size is limited to 25 people including guides.

Wilderness Study Areas

1) Permittee is responsible for knowing where wilderness study areas (WSA) and other special management areas (i.e., Area of Critical Environmental Concern, Research Natural Area, etc.) are and use restrictions that may apply to such areas. Maps and information concerning restrictions are available at the Monument.

TRANSPORTATION AND ACCESS

1) All machinery (street legal motorized vehicles, non-street legal all-terrain vehicles, dirt bikes etc.) that has been used outside the Monument must be cleaned prior to use in the Monument, to prevent the possible introduction and spread of noxious weeds.

2) Access onto the Monument will be along defined roads listed on the transportation map in the Grand Staircase-Escalante National Monument Management Plan.

3) Cross-country motorized travel on the Monument is prohibited. All motorized and mechanized (bicycles, deer carts) vehicles must stay on designated roads while traveling in the Monument.

4) Permittee shall not construct new trails, or maintain existing trails without written authorization from the Monument.

SANITATION AND AESTHETICS

1) Pack it in, pack it out. Inspect your campsite and rest areas for trash or spilled foods. Pack out all trash, leftover food, litter, toilet paper and hygiene products.

2) Burning and burying food waste are prohibited.

3) Permittees in an area where there is less than a 200-foot distance (about 85 adult steps) from water sources, camp, and trails must use a portable self-contained toilet system. All human waste must be packed out and disposed of at a certified disposal site.

4) If a small portable toilet cannot be used, deposit solid human waste in catholes dug 4 to 6 inches deep at least 200 feet (about 85 adult steps) from water sources, camp, and trails. Cover and disguise the cathole when finished. Never dig a cathole under an overhang or shelter.

5) If necessary, i.e., camping in one location for multiple days, a trench may be dug to dispose of human waste. To dig a trench, start with a cathole dug 4 to 6 inches deep and expand it in one direction as additional people use it; soil dug from the trench should be used to cover the feces.

6) If camping in an area for more than one night, cathole sites must be widely distributed.

7) To wash yourself or your dishes, carry water 200 feet away from water sources and use small amounts of biodegradable soap. Scatter strained dishwater and pack out remaining food particles.

8) Wash water must be emptied over sand, gravel, or another filtering surface.